



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/494,183	01/31/2000	Yukihiro Ozeki	32178-157380	3124

7590 06/02/2004

ALLEN WOOD
RABIN & BERDO, P.C.
1101 14TH STREET, N.W.
SUITE 500
WASHINGTON, DC 20005

EXAMINER

PHILPOTT, JUSTIN M

ART UNIT	PAPER NUMBER
----------	--------------

2665

13

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/494,183

Applicant(s)

OZEKI, YUKIHIRO

Examiner

Justin M Philpott

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-22 and 24-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-19 is/are allowed.
- 6) ☒ Claim(s) 12-14, 20-22, 24, 26, 27 and 29 is/are rejected.
- 7) ☒ Claim(s) 25, 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 12 and 13 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 12 is objected to because of the following informalities: "N modulated N pulse trains" (line 7) should be changed to "N modulated pulse trains". Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12-14, 20-22, 24, 26, 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art FIG. 5 (AAPA) of the instant application in view of U.S. Patent No. 5,870,213 to Ishikawa et al.

Regarding claim 12 and 13, AAPA FIG. 5 teaches a multiplexer (300) which divides a carrier pulse train having predetermined amplitude into N pulse trains (e.g., N is equal to two), modulates (302, 303) the N pulse trains by N data signals, respectively, to produce modulated N

Art Unit: 2665

pulse trains, and time-division multiplexes the modulated N pulse trains (see pages 1-3).

However, prior art FIG. 5 of the instant application does not teach an amplitude adjuster which implements an amplitude adjustment so that the modulated signals (in this case, modulated N pulse trains) have different amplitudes from each other.

Ishikawa teaches an optical time-division multiplex system (e.g., see FIG. 70 and 75) and, specifically, teaches an amplitude adjuster (e.g., optical amplifier/optical attenuator 256 in col. 31, line 52; see also col. 30, line 15 – col. 33, line 2) which implements an amplitude adjustment so that the transmitted signals have different amplitudes from each other. Further, Ishikawa teaches a demultiplexer (e.g., optical demultiplexer 250 in FIG. 70). Specifically, the demultiplexer (details of which are shown in, e.g., FIG. 97 and described in col. 35, line 62 – col. 36, line 38) of Ishikawa comprises: a transmitting/blocking section (e.g., optical switch 434) having an input port that receives (e.g., from 430) the multiplexed modulated signal, a control signal (e.g., to 442) corresponding to one of the N modulated signals, and an output port (e.g., to 436) that emits the one of the N modulated signals corresponding to the control signal; a reference section (e.g., timing regenerator 432) which receives the multiplexed modulated signals and generates a reference signal (e.g., to 439) representing the average amplitude of the N modulated signals (e.g., see FIG. 72 wherein the CLK component comprises an average of the amplitudes from g and h); a detection section (e.g., 440) which generates a detection signal (e.g., to 439) with information identifying the one of the N modulated signals that is emitted by the transmitting/blocking section (e.g., 434) (e.g., see col. 36, lines 16-18); a judgment section (e.g., phase shifter 439) which compares the reference signal (e.g., from 432) to the detection signal (e.g., from 440) and generates a judgment signal (e.g., to 434); and a control section (e.g.,

Art Unit: 2665

implicitly within 434) which generates the control signal (e.g., signal from 434 to 442) for the transmitting/blocking section (e.g., 434) on the basis of at least the judgment signal (e.g., from 439) and an electrical select signal (e.g., electrical signal determined at 444 and affecting detection signal leaving 440) that designates one of the modulated signals (see col. 36, lines 18-19). The teachings of Ishikawa provide improved demultiplexing at the receiving portion by enabling extraction of a clock signal from the transmitted signals (e.g., see col. 31, lines 1-7). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Ishikawa to the system of FIG. 5 of the instant application in order to provide improved demultiplexing at the receiving portion by enabling extraction of a clock signal from the transmitted signals.

Regarding claim 14, Ishikawa teaches a clock extractor and divider (e.g., comprising optical coupler 430 and timing regenerator 432) that receives the multiplexed signals and generates a clock signals from it and dividing the clock signal (e.g., yielding $Q/2$ -Hz, see col. 36, lines 5-6) being supplied to the control section.

Regarding claim 20, in the multiplexer according to prior art FIG. 5 of the instant application the pulses of the pulse trains are optical pulses and the pulse trains are time-division multiplexed to form the multiplexed pulse train, the pulse trains having pulse periods that are substantially the same. Furthermore, Ishikawa teaches means for generating a sinusoidal signal (e.g., CLK component in FIG. 72) having a period that is substantially the same as the period of the modulated signals. As discussed above, the teachings of Ishikawa provide improved demultiplexing at the receiving portion by enabling extraction of a clock signal from the transmitted signals (e.g., see col. 31, lines 1-7). Thus, at the time of the invention it would have

Art Unit: 2665

been obvious to one of ordinary skill in the art to apply the teachings of Ishikawa to the system of FIG. 5 of the instant application in order to provide improved demultiplexing at the receiving portion by enabling extraction of a clock signal from the transmitted signals.

Regarding claim 21, Ishikawa teaches a clock extractor and divide by two divider (e.g., comprising optical coupler 430 and timing regenerator 432) that receives the multiplexed signal and divides an output signal from the clock extractor to generate the sinusoidal signal (e.g., $Q/2$ -Hz, see col. 36, lines 5-6).

Regarding claim 22, Ishikawa teaches selectively inverting and non-inverting the sinusoidal signal (e.g., see col. 36, line 50 regarding changing the clock signal from 0 to ± 180 degrees).

Regarding claims 24 and 27, Ishikawa teaches the transmitting/blocking section (e.g., 434) blocks one of the two pulse trains and transmits the other to the output port (e.g., to 436) of the transmitting/blocking section (e.g., see col. 36, lines 3-12).

Regarding claims 26 and 29, Ishikawa teaches within the detection section (e.g., 440) receives an optical signal (e.g., at optical coupler 442) diverted from the pulse train that is transmitted to the output port (e.g., to 436) of the transmitting/blocking section (e.g., 434).

Allowable Subject Matter

5. Claims 15-19 are allowed.
6. Claims 25 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

claim 16 recites the demultiplexer discussed, having a control section comprising a controller that receives the judgment signal and the select signal, a phase shifting component that receives the divided clock signal and an output signal from the controller and that generates a pulse-sieving signal as an output, a phase adjuster that adjusts the phase of the pulse-sieving signal, and a drive amplifier that receives the phase-adjusted pulse-sieving signal and generates the control signal from it, which was not found in a search of related prior art; claims 15 and 17-19 depend upon, and include additional limitations of, claim 16 and are therefore also allowed; and

claims 25 and 28 recite the multiplex communication system of 24 and 27 wherein the detection section received an electrical signal that is generated by the transmitting/blocking section from energy absorbed from the blocked pulse train, which was not found in a search of related prior art.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

Art Unit: 2665

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M Philpott whose telephone number is 703.305.7357. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on 703.308.6602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Justin M Philpott


HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600